

I CLAIM:

1. A gear for a gear pump having an inlet chamber, a metering chamber and an outlet chamber, said gear being located in said metering chamber and having a pair of herringbone gear teeth spaced apart at a predetermined pitch, each of said gear teeth having helical side portions and a curved central portion connecting said side portions whereby material conveyed by said gear pump is smoothly squeezed out of the space between said gear teeth at said curved portion of each of said teeth and then moved axially outward and over said gear teeth into said outlet chamber.

2. The gear of claim 1 wherein each said curved central portion extends circumferentially of said gear a distance equal to at least one half said predetermined pitch.

3. The gear of claim 2 further comprising said curved central portion of each of said teeth being generated by rotating said transverse section along an axis of each of said teeth.

4. A gear pump for feeding elastomeric material to a die providing components for building a tire, said gear pump having a housing with an inlet chamber, a metering chamber and an outlet chamber, a pair of gears rotatably mounted in said metering chamber with each of said gears having a plurality of herringbone gear teeth spaced apart at a predetermined pitch for meshing engagement with gear teeth of the other of said gears, each of said gear teeth having helical side portions and a curved central portion connecting said side portions, and means for rotating said gears to carry said elastomeric material from said inlet chamber through said metering chamber into said outlet chamber and for sealing the space between said outlet chamber and said inlet chamber upon said meshing engagement of said gear teeth of said pair of gears.

5. The gear pump of claim 4 further comprising an inlet opening in said inlet chamber for receiving said elastomeric material to fill said inlet chamber during operation of said gear pump.

6. The gear pump of claim 5 further comprising a die channel in said outlet chamber of said die for supplying elastomeric material of a desired cross section.

7. A method of pumping elastomeric material through a gear pump having an inlet chamber, an outlet chamber and a metering chamber, a pair of gears having herringbone gear teeth disposed in said metering chamber at a predetermined pitch, each of said teeth having helical side portions and a curved central portion comprising feeding said material under pressure into said inlet chamber, rotating said gears to convey said material through said metering chamber into said outlet chamber and smoothly squeezing said material out of the space between said meshing gear teeth at said curved central portion of each of said gears and then over said gear teeth into said outlet chamber as said gear teeth seal the space between said outlet chamber and said inlet chamber.

8. The method of claim 7 further comprising said herringbone gear teeth of each of said gears being spaced apart a predetermined pitch for meshing engagement and said curved central portion of each of said teeth extending circumferentially of said gear a distance equal to at least one half said predetermined pitch for providing a continuous squeezing contact between the teeth of said pair of gears as they rotate to supply said material to said outlet chamber.